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EDITORIAL.—DR. J. T. ROTHROCK left this country for Germany, June 19, to spend a few months in some of the renowned botanical laboratories there. He is specially interested in the preparation of anatomical studies and we may expect from him slides even superior to those he has already produced.

MR. S. T. FERGUS, of Westchester, Penn., is a young man who is doing some most excellent work in the preparation of slides for the microscope. We have before us a half-dozen of as handsome slides as we have ever seen. He seems to be particularly successful in the bleaching of ferns, and, by means of double staining, the spores are brought out in very sharp outline. For class use or for private study nothing better could be given than a well-selected lot of slides, such as Mr. Fergus prepares. We would cordially recommend him to botanists as one worthy their patronage.

BARON EGGERS has sent out a prospectus in which is promised the scientific exploration of the West Indies. The natural history of these islands is very imperfectly known, and what has been done gives us very scrappy results. Baron Eggers now proposes a thorough exploration of the islands for the purpose of freshening up knowledge already gained, but more for the discovery of the unknown species that he is confident are lurking there. The Baron starts in with the advantage of many years of study in the botany of the West Indies and the organization of exploration under his experienced guidance must bring very great results for very little outlay. The object of the prospectus is to invite the co-operation of botanists by subscribing for sets already made and still to be made. Subscriptions, stating the address, kind and number of collections desired, should be sent to Baron Eggers, St. Thomas, West Indies, by the 1st of July. Payment will be made upon the delivery of the collections. The price per hundred species for Phænogams is $12 50; for Cryptogams, $10. If botanists desire, arrangements can be made to send only their *desiderata*.

THE VALLEY NATURALIST comes to the front again, and through a circular letter promises to revive itself, under a somewhat altered form, for $1.50 per year. It is to be published monthly and will consist of sixteen pages, and appeals to naturalists of every kind for a support. It calls for the "minor notes that every working naturalist daily makes, and however interesting they may be, often remain forever buried in the note-book of the observer." Now, we have been fishing for these same "minor notes" for some years past, and

have come to the conclusion that botanists do not take as many notes as we give them credit for doing, or that such notes as they do "daily" make are not worth publishing in any kind of a paper, and if they are buried they deserve to be. We are only afraid that if Mr. Skaer confides too much in the resurrection of buried notes he will find 16 pages hanging heavy on his hands. Too often does the scientific editor, when the time to go to press comes to hand, find himself compelled to make something out of nothing, and his many subscribers, with their many buried notes, sit quietly down and read the result with no pangs of remorse. Any one sending 15 cents to Mr. Henry Skaer, Room 34, N. W. Cor. 3d and Pine Sts., St. Louis, Mo., can obtain No. 1 of the *Valley Naturalist*, and can judge for himself whether he wishes to continue it.

MR. E. S. MILLER, of Wading River, N. Y., sends out for 1880 an attractive catalogue of North American Orchids, Bulbs, Aquatics, Ferns, etc. The promise is made that any North American plants, not in the catalogue, will be procured if appplication for them is made in suitable season. The list as given contains 56 Orchids, 76 Ferns, 54 Aquatic plants, 76 Bulbs, 28 Shrubs, and 193 Herbaceous Plants.

DR. OTTO KUNTZE, of Leipzig, has recently published a work in which he seems to take some very advanced views and proposes some very radical changes. He considers that recent investigations, such as those of Darwin, have destroyed the old idea of species, but that we still hold to it in systematic botany. He makes strong objection to the practice of taking some form as the type of a species and thus seeming to acknowledge species as a fixed rather than a relative thing. To follow nature correctly he contends that every form should be described and arranged in proper relationships, and thus the true genealogy might be made out. Dr. Kuntze illustrates his methods by applying them to the simple-leaved forms of the genus *Rubus*, a most perplexing one to Old World botanists. Thus, if we catch the idea, under this genus *Rubus*, we would have no specific names, but simply terms applying to certain classes of forms. Not so very simply, either, as the following proposed names will show. Under simple-leaved *Rubi* are first, *Finiformes* and *Gregiformes*. The latter are again divided into *Locoformes*, *Typiformes*, *Versiformes*, *Ramiformes*, *Avoformes*, *Medioformes*, *Mistoformes*, *Singuliformes*, etc. Rather than use such terms in place of our simple specific names we think that botanists will choose to continue to seem to contradict nature for the sake of convenience. We can still say *Rubus Canadensis* with the mental reservation at the same time that we know there is no such thing, just as we speak of the flow of a current of electricity, although we know that electricity is no fluid. Nor do we see why the proposed change should not be applied to genera as well as to species. Another change Dr. Kuntze proposes is to use arbitrary signs in place of language in botanical descriptions. Imagine the descriptive phrase, "Sepals 2, ovate, free, persistent. Stamens 5, adhering to the short claws of the petals" made to look someting like this—"S_2 x o=A_5 x X y P." When a botanical description gets to

look like an equation in affected quadratics it loses much of its attractiveness to the ordinary botanist.

THE EDITORS OF THE GAZETTE propose to take a summer vacation, and to be relieved for a month or two from editorial duties. The August number will, therefore, not be published as usual, during the last week of July, but publication will be deferred to the last week of August, when a double number, of at least 30 pages. will be published for August and September. Any communications sent during the months of July and August should be addressed to the Editors at the Botanic Garden, Cambridge, Mass. We hope that subscribers will take careful note of the above, and not be sending us queries as to what has become of the August GAZETTE.

NOTULÆ EXIGUÆ.—*Eremurus robustus*, that stately Liliaceous plant of Turkestan, which is now displaying its raceme of half a yard in length in the Cambridge Botanic Garden, exhibits strong proterandry correlated with a movement of the style, analogous to that of *Sabbatia*. When the flower opens the slender style becomes at once strongly deflexed; on the second or third day, when the stigma becomes receptive and the anthers effete, the style straightens and brings itself nearly into the line of the axis of the flower.

The collection of Venezuelan Mosses put up into sets of 145 species each, named by Dr. Mueller, with a printed form of ticket, along with a copy of the pamphlet (from Linnæa) in which they are enumerated. and the very many new species described, is now furnished for $14, by Adolf Schrader, No. 224 West State St., Columbus, Ohio.—A. GRAY.

VITALITY OF SEROTINOUS CONES.—In a seed so large as any one of the Pines referred to, there need be no prolonged experiment to ascertain its vital power. All seeds change the normal color when the germinating power is lost. If a pine seed has an ivory white tint when cut across, it may grow, no matter how many years old it may be. I say may grow, because there are many contingencies on which success is dependent besides the vital conditions of the seeds themselves. Germinating pine seeds are susceptible to fungoid attacks beyond any seeds I know, and they are very often wholly destroyed before the radicle has hardly pushed through the seed coat. In Prof. Sargent's experiments the seed were sown on the 17th of May, and "the final examination was made on the 15th of December." The final examination should have been made within six weeks of sowing, as in *Pinus contorta*, all would have been sprouted in that time that intended to grow, and those with injured radicles would have been distinctly seen.

As the original discoverer of living trees of *Pinus pungens* in Pennsylvania (an old cone having been found by Professor Porter a few months before) I have taken an interest in watching its behavior. The cones would scarcely be called serotinous as a general thing, for I have often found cones of the same season open in October, and all

the seeds dispersed. But cones of many years old can be found on many trees, and though some have no seeds, others are full, and by cutting them across the seeds are found perfectly good. For commercial purposes when the new cones are not abundant enough, old cones are gathered for the seeds, and they grow just as well as the recently matured ones. I have known *Pinus pungens* six years cleaned to grow just as well as those taken from the cones,—and these cleaned seeds, too, made up from old closed cones, as well as from the fresher ones.

I have often been tempted to take up the pen, when scientific experiments have been recorded on the growth of seeds. Many of them are fallacious from assuming that seeds fail to grow to young plants for no other reason than that the seeds had lost their vital power. One may take a hundred of the freshest kind of Pine seeds, and another hundred of the same kind and sow in separate pots, and keep both under exactly the same conditions as far as he knows, and yet from the hidden causes I have referred to, have one hundred plants from one pot, and not fifty from the other. I feel quite sure that a serotinous Pine seed, if white and not yellowish when cut across, would grow just as well when twenty years old as any from recent cones.—T. M.

MICHIGAN LAKE SHORE PLANTS.—The following is a partial list of plants growing on the beach and sand banks of Lake Michigan in the vicinity of South Haven, Mich.:

Geranium Robertianum, L., grows sparingly on shady bluffs. *Ptelea trifoliata*, L., grows quite thriftily in clean white sand. *Arabis hirsuta*, Scop., is found on banks with heavy soil, and *A. lyrata*, L. abundantly in pure sand. The lyrate-pinnatifid radical leaves of *A. lyrata* are generally entirely covered by the drifting sand, causing them soon to decay, thus making the plant difficult of analysis. The uppermost leaves are perfectly linear, and the whole plant often glaucous.

Prunus Virginiana L., *P. Pennsylvanica*, L, and *P. pumila*, L., are all found on sandy banks, the latter often ascending to a height of over four feet. *Potentilla Anserina*, L., grows on the level beach, its clumps of beautiful pinnate leaves strongly resembling, at a short distance, a tuft of ferns. *Crataegus tomentosa*, L., var. *pyrifolia* occurs occasionally. *Lathyrus maritimus*, Bigelow, is plentiful in the sands all along the beach, making a fine display.

Diervilla trifida, Moench., occurs sparingly in the sand. *Cirsium Pitcheri*, Torr. and Gr., grows on sand bluffs. It is a singular plant, its very heavy heads resting on the ground.

Pyrola chlorantha, Swartz., *P. secunda*, L., and *Chimaphila umbellata*, Nutt., occur on shaded bluffs. *Arctostaphylos Uva-ursi*, Spreng., I found on exposed, sandy banks.

Polygonum cilinode, Mx., is abundant in drifting sand. *Euphorbia polygonifolia*, L., is found on the level beach, also *Corispermum hyssopifolium*, L., but sparingly.

Lithospermum hirtum, Lehm., is abundant on sand bluffs. Its showy yellow flowers are very fragrant. It might be a valuable acquisition to our gardens. *Shepherdia Canadensis*, Nutt., is abundant. *Salix viminalis*, L., occurs abundantly on a springy, clay bank near the harbor. *S. discolor*, Muhl., and *S. rostrata*, Rich., grow to a good size in clean sand. *Populus balsamifera*. L., var. *candicans* is native north of the harbor. This clump of low, stunted trees, is the remnant of a narrow belt about a mile in length which contained scattering specimens when the first settlements were made here thirty years ago.

Juniperus communis, L., and *J. Virginiana*, L., are common; and in the bluffs under evergreens, *Thuja occidentalis*, L., and *Taxus baccata* L., var. *Canadensis*, Gray.

Juncus Balticus, Willd., is abundant on the beach. *Calamagrostis longifolia*, Hook., and *Cenchrus tribuloides*, L., are uncommon. *Aspidium marginale*, Swartz., occurs on the bluffs. Specimens of most of the above are on hand for exchanges.—L. H. BAILEY, JR., *South Haven, Mich.*

FUNGI ON ANEMONE NEMOROSA.—I have found on living plants of *Anemone nemorosa*; *Synchitrium Anemones*, *Æcidium Anemones*, *Æ. Ranunculacearum*, *Puccinia Anemones*, *Peronospora pygmæa*, and *Urocystes pompholigodes*. I have sometimes found three of these on the same leaf. Is there any other plant that has an equal number of parasitic fungi?—E. W. H., *Decorah, Iowa.*

LA PHYTOGRAPHIE, by Alph. DeCandolle, 8 vo., 48 pp.—This is a work we would like to see translated into English for the benefit of our own botanists. Coming as it does from the most eminent European authority, from one whose whole life has been devoted to the description of plants, it is likely to become the authority upon Phytography, or the art of describing plants considered from almost every point of view. At first sight the subject appears to have to do with the form of botanical works alone, but the art of describing is based on that of observing, comparing and classifying. Phytography with respect to facts is a sort of garment, which it is necessary to know how to modify to suit the dimensions of an individual increasing in stature. Two old works have exerted a powerful influence on botanical writings, namely, the *Philosophia botanica* of Linnæus, and the *Theorie elementaire de la botanique* of Augustine Pyramus DeCandolle. These works are separated from each other by more than sixty years, and now, again, after the lapse of more than sixty years, Alph. DeCandolle publishes this present work, in which are considered many questions that the progress of the science has suggested. The direction of the *Prodromus* and of the *Monographiæ Phanerogamarum* has peculiarly fitted the author for the work in hand, and he can speak upon this subject from a wider experience, probably, than any other botanist. The great prominence the author gives to works on descriptive botany, he says, is due to their neces-

sary duration. Works upon every other branch of botany are comparatively short-lived, being compelled to be re-written with every advance in knowledge. He refers to works on vegetable physiology and anatomy and says that the authors of even a few years ago are forgotten and their works consigned to obscure corners in botanical libraries. In vegetable physiology Hales and DeSaussure are rescued from their oblivion. In vegetable anatomy every improvement of the microscope has compelled much of the work to be done afresh. That which we describe by unaided vision always remains, but that which we see with the aid of processes of amplification must depend upon the nature of these processes, and some simple discovery of an optician may cause the abandonment of many excellent books. Descriptions of plants, however, are most enduring, and works containing them always will be consulted. Such books of even a century old or more are being constantly consulted, for the law of priority demands a great deal of hunting back in dusty records, where verification, if anywhere, demands clear description. Since the duration of descriptions is so great it is important that they should be well done. The anatomist and physiologist are fortunate enough to be able to fall into oblivion, but for the describer of forms and groups is reserved a much more serious fate. Like the Wandering Jew, he is condemned to live, and being of necessity consulted, if his work is badly done, he is open to the execrations of botanists century after century. The author then gives an exhortation which should be hung in illuminated text over the work-table of every botanist who attempts to describe a species: "Observe with care, describe with method, name and classify properly; your reputation, even your honor is at stake." Works on natural groups of plants are destined to absorb and summarize all other departments, for into the description of species, genera, families, etc., must enter, sooner or later, the anatomical characters, the physiological properties, the facts of habitation, origin, bibliography, etc. The author is disposed to think that we, in schools, are in danger of running too much, to anatomical dissections, avoiding the older paths of classification, and we do not know but that he is right. It can hardly be questioned that the mind is called into higher and more general action by the study of the basis of classification than by studying how to dissect and hunting for the thousandth part of a millimetre under a microscope. As De Candolle says, the former is a more efficient method of training for a general student, by teaching him observation, and the best means of observation is acurate description. The names of the species, the groups, the organs may all be forgotten, but the principles are not, and the same methods can be well applied in may other things.

The object of the present volume is the perfection of the methods of the description. There is a loud call for greater uniformity in all departments of natural history. There is no reason why the terms used in Phaenogamic and Cryptogamic botany should be so distinct that an adept in one may not understand the language of the other. There should be fixity in the names of organs, and in works on

anatomy there should be regular methods of description, such as have been so successfully employed in systematic botany. The progress of botany now, as of all sciences, is towards simplicity, as for instance, all the parts of plants, the most complicated, are reduced to root, stem, and leaves, and these in turn are but multiplied cells, proceeding from a plasma of uniform appearance. So methods of description should be reduced to like simplicity and comprehensiveness.

The author hopes that the progress of the science and in a very small degree the application of his own counsels may render useless in a few years the great part of the present volume. The last part of it, however, will be long consulted, for it is a grand list of herbariums that are of use in authenticating species. From this list can be learned just where at present are the herbariums of authors who have published and the famous collections ot explorers. For this botanists will be very grateful for it will help in securing information that might not otherwise have been obtained.

ALBINO ARETHUSA BULBOSA.—Mr. Fred Hoard, of Providence, R. I., has just brought me a perfect albino of *Arethusa bulbosa*, L. The yellow lines of the labellum are retained.—W. W. BAILEY.

RECENT PUBLICATIONS.—*Catalogue of North American Musci.* Eugene A. Rau and A. B. Harvey. This neat catalogue of over fifty pages is intended to furnish a check and exchange list, and also a basis for the arrangement of genera, etc., in herbaria. It undoubtedly supplies a want felt by many botanists, and will be received with thankfulness. The range is a large one. including all North America, every authentic species reported from Mexico to the Arctic region, appearing in the list. Of course, the species are all numbered to facilitate exchanges, and the numbers mount up pretty well, rising to 1,252, distributed among 177 genera.

Catalogue of Trees and Shrubs, native and introduced in the Horticultural Gardens adjacent to Horticultural Hall, Fairmount Park, Philadelphia. This catalogue contains a hundred pages and is a good one but no man's name appears as author and we will have to take it as an anonymous production. The catalogue seems to be made more for the convenience of gardeners and amateur botanists, than for professional botanists. A great deal of work has been done in the matter of synonyms and brief descriptions in the hope that the species may be recognized. Both genera and species are arranged in alphabetical order, and as the author acknowledges his sin in this matter, his reasons seem to be very good. It is a capital catalogue and does just what it professes to do, and we can imagine nothing more convenient in the hands of a botanist visting Fairmount Park, or one desiring to know what was under cultivation there.

Bulletin of the Torrey Botanical Club, May.—The noticeable feature in this number is Mr. Davenport's description of a new fern accompanied by an excellent plate, drawn by Mr. C. E. Faxon. The new fern is *Notholæna Grayi*, and was collected among the mountains

of south-eastern Arizona, by Wm. M. Courtis. Mr. Davenport considers it one of the most elegant species yet discovered and so different from any known form that, although the material is scanty, he has no doubt as to its claim to rank as a genuine species. "There is no other species with which it can be compared. Under the microscope, the white powder (upon the fronds) separates into distinctly stalked gland like bodies with enlarged conical, flat or inverted heads like a miniature host of fungi, with their variously shaped caps. With a power of 200 diameters, or even less, the scales of the frond appear to be composed of elongated, cylindrical, tapering tubes, containing a light brown coloring matter, collected into a mass at the base, or in spots at intervals throughout the length of the otherwise whitish scales, which are thus made to appear jointed."

American Naturalist, June.—This journal, of course, runs to Zoology, as is to be expected from the tastes of both its editors. Every department has a specialist in charge of it except botany, and, of course, the botanical notes lose just that much in force and authority. But the wants of botanists have not been entirely neglected, and we have to thank the *Naturalist* this year for several valuable articles. The most interesting one in the June number is Prof. C. E. Bessey's on "The Supposed Dimorphism of Lithospermum longiflorum." The author seems to have made a most exhaustive study of this species, carefully measuring the length of corolla tube, the height of anthers and the height of stigma of over 60 flowers, with the view of testing the supposed dimorphism. The results show great variation in the measurements, but nothing like the well-marked differences that appear in true dimorphism, such as that of the nearly allied *L. canescens*. The results are summed up as follows:

1st. The length of the corolla is exceedingly variable.

2d. The distance from the anthers to the top of the corolla tube is approximately uniform, so that the position of the anthers is largely dependent upon the length of the corolla tube.

3d. The length of the style is even more variable than that of the corolla tube.

MR. E. GREENE writes that in his article on "Certain Silkweeds" in the last GAZETTE, it should read of *A. Sullivantii* that it is more common in Minnesota than in other locality further south, rather than "north," as it is printed. Also *A. speciosa* has not been reported farther east than Nebraska, instead of "Nevada."

HYGIENIC AND THERAPEUTIC RELATIONS OF HOUSE PLANTS, by J. M. Anders, M. D., Ph. D.—This small pamphlet of sixteen pages is a reprint from the Philadelphia *Medical Times*. It will be remembered that Dr. Anders last year published in the *American Naturalist* some articles in which were recorded some very careful observations with regard to the moisture evaporated by plants and their beneficial influences. The present paper is meant as an answer to the common question, "How do plants in rooms affect the health of the inmates?"

We make no apology for making some extracts from a paper which deals with a subject of universal interest:

"The old question of the effects of living plants on the air of houses is one of considerable interest. The family doctor is often confronted with the query, "How do plants in rooms affect the health of the inmates?" Formerly, it was the universal opinion that they were injurious to health, particularly in the sleeping room and sick-chamber. Unfortunately, this still continues to be a popular impression. To review the various views on this topic, down to the present, would be foreign to the scope of this article and quite out of place. The discussion will necessarily be confined to the present state of our knowledge concerning this subject, and especially such of its bearings as are interesting from a medical point of view.

"Three of the chief functions in plant life are the absorption of carbonic acid, the exhalation of oxygen, the generation of ozone. Now, it has been conclusively shown that variations in the amount of these gases from the presence of any number of plants have no appreciable effect on the air of an apartment, the absorption and exhalation of these substances being carried on too slowly either to improve or to vitiate the air.

There is, however, yet another process in plants, which in this connection is of far greater importance, viz., that of *transpiration*. By this term is meant the exhalation of moisture by the leaves. About this function very little was known until recently. Careful investigations of the subject have been made by the writer to which brief reference only can be made here, for they have formed the basis of a paper elsewhere. It may suffice to say that the average rate of transpiration for plants having soft, thin leaves, as the geranium, lantana, etc., is one and half ounces (by weight) of watery vapor per square foot of leaf surface for twelve diurnal hours of clear weather. In order to convey some notion of the great activity of this function, it might be stated that at the above rate the Washington elm, at Cambridge, Massachusetts, with its two hundred thousand square feet of leaf surface, would give off seven and three quarter tons of water in twelve hours. In the twenty-four hours an in-door plant will transpire more than half as much as one in the open air. It would appear to follow naturally from these facts that growing plants would be capable of raising the proportion of aqueous vapor of the air of closed apartments. And this suggestion prompted the writer to make observations with the view of establishing this fact experimentally. By means of the hydrometer, the atmosphere of two rooms at the Episcopal Hospital, in which the conditions and dimensions were in every respect similar, were tested simultaneously, in order to note the variations produced by growing plants. In the window of one of the rooms were situated five thrifty plants, the other contained none.

For eighteen consecutive days the dew-point of the room containing plants gave an average complement one and a half degrees lower than the room in which there were no plants. Thinking that

possibly this difference of humidity might not be owing solely to the presence of plants, the conditions were varied, and further observations made, with similar results. The manner in which these investigations were carried out cannot be here detailed. The following conclusion should, however, be quoted: "During the summer months, when the windows are thrown widely open and the doors kept ajar, the influence of transpiration is quite inconsiderable; on the other hand, when the interchange of air is not too rapid, a sufficient number of plants, well watered, have the effect (if the air be not already saturated) of increasing the amount of moisture to a considerable extent." This point, as will be presently seen, is of special importance where houses are heated by dry air furnaces."

Then follows the record of a number of cases, from which the following conclusions are drawn:

"From the above cases it will be seen that what we had deduced from experimental results concerning the health giving effects of plants (which is owing to transpiration increasing the humidity of the air,—the plants acting as natural and perfect "atomizers") is entirely in harmony with what is observed concerning the effect of sufficiently moist warm air in many cases of phthisis, and if it is true, as we have attempted to demonstrate, that house-plant hygiene constitutes a valuable preventative measure where there is hereditary tendency to certain diseases, then it ought to be definitely and thoroughly understood, and it is of vital importance that it should be adopted in cases where there is known predisposition to phthisis, for half of the cases are supposed to be preventable, whereas if the disease be allowed to develop, complete recovery is not to be expected. Furthermore, though the keeping of plants does not "cure" confirmed cases of phthisis, it is nevertheless very useful to prolong life, and by ameliorating the distressing symptoms renders existence at least endurable—an office not to be despised in such a wide-spread and lingering disease.

Observation teaches that advanced cases of phthisis (as, for instance, where cavities exist) are benefitted by a more decidedly moist atmosphere than is required in health, and hence they will require a much greater profusion of plants in the room than those who have the disease in a more incipient stage.

The plants should be well selected and kept in a thriving condition. The chief points to be borne in mind in the selection of the plants are, first, that they have soft, thin leaves; secondly, foliage-plants or those having extensive leaf-surface are to be preferred; thirdly, those which are highly scented (as the tuberose, etc.) should be avoided, because they often give rise to headache and other unpleasant symptoms.

In order to facilitate a practical application of the data gained by experiment, the following formula has been carefully prepared: Given a room twenty feet long, twelve feet wide, and ceiling twelve feet high, warmed by dry air, a dozen thrifty plants with soft, thin leaves and a leaf-surface of six square feet each would, if well

watered, and so situated as to receive the sun (preferably the morning sun) for at least several hours, raise the proportion of aqueous vapor to about the health standard.

This formula may serve as a guide in the use of plants for hygienic purposes; but under conditions of actual disease it will be necessary to increase the proportion of plants according to the degree of humidity sought, or as the indications of individual cases may demand.

It should be stated that, to obtain the best results, both the rooms occupied during the day and the sleeping apartment should contain plants. It was for a long time the opinion of scientific interpreters generally that plants in sleeping apartments were unwholesome because of their giving off carbonic acid gas at night; but it has been shown by experiment that it would require twenty thrifty plants to produce an amount of the gas equivalent to that exhaled by one baby-sleeper: so this is no valid objection to their admission, and not to be compared with the benefit arising from their presence.

We have no desire to underrate other means of treatment while upholding the importance of our subject. Exercise in the open air is of immense advantage in phthisis, and during the warm season the consumptive should be moving among his garden-plants, and, if he be a lover of flowers, should assume personal charge of them. Again, no one will dispute the value of certain tropical climates for judiciously selected cases of phthisis; but the practice of indiscriminately sending patients to them is certainly to be deprecated.

New health-resorts (many of them comparable only to the patent nostrums) are constantly being pressed upon the public, but too often a trial of them brings only disappointment, and the consumptive is rendered more miserable by the annoyance of travel and the anxiety of being separated from all the endearing relations of home. And even where travel is desirable, it is, for financial or other reasons, quite impossible in a large proportion of cases.

To have always at hand and readily available so complete and withal so agreeable a health-resort at home as that furnished by a room well stocked with plants must prove an inestimable boom to the despairing invalid.

THE ORIGIN AND SURVIVAL OF THE TYPES OF FLOWERS.—In a lecture delivered before the California Academy of Sciences, October, 1879, Prof. Cope proposed the hypothesis that "the consciousness of plant-using animals, as insects, has played a most important part in modifying the structure of the organs of fructification in the vegetable kingdom. Certain it is that insects have been effective agents in the preservation of certain forms of plants." Dr. Hermann Mueller has recently published a book in which he seeks to explain the existing variations in the forms of flowers on the principle of selection. He supposes that insects of different tastes bred peculiar flowers, just as men breed peculiar races of cattle. Carrion loving insects bred their kind of flowers, and long-tongued insects, the tubular kinds, and

many other classes of insects have, each class, bred the flowers they love best.

Dr. Mueller is abundantly able to theorize on this subject, and his views, so far as they go, will command the assent of most persons. But like all the Darwinians, he confounds survival or preservation of characters, with the origin of characters. On this subject Prof. Cope has the following: "I would suggest whether the mutilations and strains they [plant-using animals] have for long periods inflicted on the flowering organs may not, as in some similar cases in the animal kingdom, have *originated* peculiarities in structure."—*American Naturalist.*

SOUTH-WESTERN PLANTS.—Prof. F. L. Harvey, of Fayetteville, Ark., has sent a list of plants that were collected upon a recent trip from Fayetteville to Neosho, Missouri. The list numbers about 120 species, most of them such as are common farther north and east. Of course, introduced species go wherever man goes, and such may be expected to appear in every list of plants, and the interest attached to them comes chiefly from the fact that they are spreading just as was expected. Species peculiar to any region often are unexpected species, and hence a list of indigenous plants is always interesting to look over. We have no space, of course, to reproduce Prof. Harvey's complete list, for bare lists make dry reading at best, unless the reader is looking for exchanges. The mention of a few species, however, may be interesting. We note the following: Isopyrum biternatum, Corydalis crystallina, Arabis Ludoviciana, Scleria aurea, Viola tricolor, var. arvensis, Arenaria Pitcheri, Lathyrus pusillus, Astragalus distortus, A. Mexicanus, Zizia integerrima, Fedia radiata, F. longiflora, Androsace occidentalis, Collinsia violacea, Pentstemon tubiflorus, Amsonia Tabernæ-montana, Trillium sessile, var. Nuttallii, Ranunculus sceleratus, Corydalis aurea, var. micrantha, Heuchera villosa.

NARCISSUS CANARIENSIS.—E. H. Krelage and Son, Nurserymen, of Haarlem, (Holland) send out a circular advertising the above species for sale. The circular consists principally of a description of the species taken from a work entitled "The Narcissus; its history and culture." It is the smallest flowered form in the whole group, the dried flowers being half an inch across. It is not in cultivation yet, the Royal Herbarium, Kew, containing but a solitary dried specimen. In the month of June the above firm received a consignment of bulbs and will fill orders that are immediately sent to them. As the plant is exceedingly scarce, even where it is found, it is hardly probable another opportunity of securing bulbs will be offered.